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CENTRE

FOOD PROCESSING DEVELOPMENT CENTRE

Our Pilot Plant

Scene of a Pilot Training Program

Over the past few months, Allan Hayman, the quality assurance supervisor, was often surrounded by a group of hard-hat clad students enrolled in the Food Processing Equipment Technicians' Program. This unique pilot program was offered for the first time by the Northern Alberta Institute of Technology (NAIT). Ten students, in two groups, worked at the Centre to become familiar with equipment used in the food processing industry.

"Our plant is perfect for this course," says Allan, who co-ordinated the equipment familiarization portion of the program. "We have many types of equipment used in the food industry, all located in one plant. It's ideal for training. We can set up pretty well any kind of processing line." The students spent three weeks at the Centre, followed by a two-month work practicum.

Dave Anderson was one of the participants. "We had seminars or workshops for knife skills and sharpening, nutrition and labelling, millwright shop, word processing and spreadsheets," he says. "We also took courses to help with communication and team building." Dave took the

course to become more comfortable with boilers and steam equipment. Like some of his classmates, he has several years of industry experience and is now looking for a growing company that needs an experienced production manager.

Marvin Diakow says he's always been fascinated with equipment. "Now, I



Marvin Diakow (foreground) checks the paddle mixer for a client.

really understand how the machinery works or what causes its breakdown." Marvin enjoyed trying to market his "Beaver Treats." It seems that Allan and the students were working with our Doboy overwrap machine used for packaging individual items like muffins. They took it apart and tried out the various features. They used some wood blocks to practise wrapping, and the students jokingly called the neat packages "Beaver Treats."

George Pan also wanted to learn how the equipment works. "This Centre gave me a very good chance to see and use it hands on." George came to Canada with a Ph.D. in pharmacy, a work background in medical and pharmaceutical research, and an idea for a business in the food industry. George currently operates his own business making green onion cakes and spring rolls for the Chinese restaurant trade. "This course gave me the tools I need to operate my business more efficiently," he says.

Claude Myles has experience from fish processing industry. He took the course to widen his horizon. Claude especially enjoyed taking part in the sensory evaluations at the Centre. "Objective evaluation of products gave me insight into some other aspects of food processing besides production lines and machinery," he says.

Everyone involved enjoyed the experience and considers it successful. We hope to participate again.

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September 1998

Alberta
AGRICULTURE, FOOD AND
RURAL DEVELOPMENT

"The Packaged Goods on Food Processing – A Planning Guide"

That's the title of a publication prepared by the Agri-Food Development Branch of Alberta Agriculture, Food and Rural Development. Our Centre clients find it extremely useful to have a business plan in place – and our colleagues in the Agri-Food Development Branch can help. You'll find *The Packaged Goods* to be an excellent resource as you develop your business plan. The publication discusses:

Business Planning

This is something to consider early for a successful venture. Executive summary, background, management, products/services, market analysis and strategy, operating costs and a financial plan are all discussed.

Where to get planning help

Governments, business service centres, banks, private consultants, universities and colleges, and industry organizations all provide help.

Market Planning

This section of the guide discusses decisions you need to make in market planning, such as targeting your product and your market, the characteristics of your customers and marketplace, market trends, advertising and your competition. There's a list of further sources of information.

Financing

Your financial plan is a key ingredient. This section looks at the costs involved in starting a business, sources of financing and where you might look for loans.

Regulations

Licenses, food safety, packaging and labelling, taxes, manpower and labor are all reviewed in this guide.

Sources of Assistance and Information

This section is a comprehensive list of organizations to help you through the process of locating the information you need for various aspects of your business such as planning, obtaining a business loan or product development.

The Packaged Goods on Food Processing is a free publication, available from the Agri-Food Development Branch in Edmonton. Phone 427-7325 or write to:

Agri-Food Development Branch
Room 304, J.G. O'Donoghue Building
7000 - 113 Street
Edmonton, AB, T6H 5T6

What's New at

Our Silver Award

On June 16, the Food Processing Development Branch received the **Premier's Award of Excellence**. The award is given to the premier to work teams. They are described as:

This annual award honours Alberta government employees for superior customer service and business practices in a work environment. This continuous effort demonstrates ingenuity, initiative, and commitment in meeting the needs of the public.

We were honoured to have been chosen to receive a certificate along with a pin. We are now displaying the award in our materials. The Centre also received a soapstone plaque for our reception area, as does the beautifully decorated waiting time you stop in.



(Back row) Allan Hayman, Marek Gierus, Peter D. Murray, Fierheller, Kevin Swallow, Gabriel C. (Middle row) Linda St. Onge, Lorea Ladner, Robert Myers.

(Front row) Gladys Osborne, Karen Erin, Susan

Coming Soon . . . A Virtual Tour

If you've worked in our facility or been through our plant can be. If you haven't been able to take a "virtual tour." The tour is available on CD-ROM. By clicking on the appropriate icon, you can see any of the several pieces of equipment. The "tour guide" shows clients during the various stages in production. Some of our clients describe their experience as a member's expertise. Additional information is available at <http://www.agric.gov.ab.ca/ministry/org/fp>

the Centre . . .

nt Centre was a Silver Recipient of the of excellence are awarded annually by d as follows:

t employees who are demonstrating es, and who are building a supportive plifies how Alberta's Public Service uses the needs of Albertans.

ne of the teams and we each received titled to use the logo on the Centre's ne sculpture. It has a place of honour in med certificate. Have a look the next



avies, Ron Pettitt, Robert Gibson,
llo, Henri Vincent.
eline Gelfand, Jimmy Yao, Connie Phillips,
z, Fern Lindholm.

gh it on a tour, you know how versatile come in person, you can now go on a h for your computer. By clicking on the essing areas, as well as close-ups of ' describes how we work with our velopment and production. Better yet, s. You'll see a description of each staff also available on our internet site at

Project Focus – Krave's Candy plus New Equipment

In our last newsletter we noted that Jimmy Yao, engineer, has the new Carrier fluidized bed dryer installed. It can dry a variety of products ranging from small grains to diced fruits and vegetables. The dryer has a stainless steel tunnel that houses a perforated shelf. The product enters the dryer through the hopper on top. A stream of air, heated by a gas-fired burner, is forced up through the product on the shelf. The air lifts the product off the shelf inside the dryer and it behaves as if it is a fluid. The food moves along the length of the dryer because the vibrating shelf is installed at a very slight angle. The dryer is fast. It will handle about 100 to 250 Kg/hr.

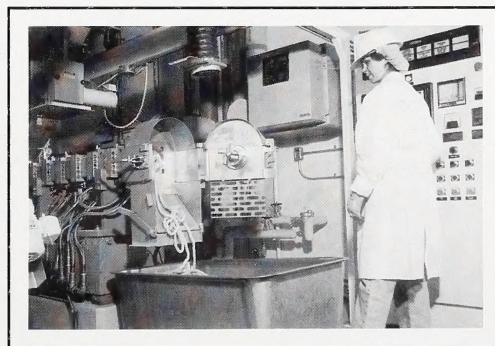
The Centre also has a twin screw extruder with two co-rotating screws, each about 1.5 m long and 5.5 cm in diameter. The extruder barrels are heated using a hot oil system and fluid ingredients can be pumped in at any point along its length. The screws mix dry ingredients with liquid. The contents are cooked and forced out the die. (A single screw extruder doesn't mix ingredients well; most of the mixing has to be done separately.) After the product is extruded, it can be dried in the fluidized bed dryer. The capacity of the dryer is about the same as the output of the extruder.

One company taking advantage of this technology is Krave's Candy. This Manitoba-based company makes "Clodhoppers" that contains an extruded cookie ingredient. Krave's was having the cookie manufactured in Minnesota, but is interested in producing this ingredient at the Centre. The extruder-dryer combination of equipment was exactly right for Krave's needs.

The project involved developing a formula and a process suited to the Centre's equipment that would also meet the company's objectives. Gabriel Chemello (extruder technician), Kevin Swallow (cereal scientist) and Connie (McPherson) Phillips (extrusion specialist) worked on the project. Krave's knew what they wanted their finished Clodhoppers to look like, so Gabriel, Kevin and Connie's challenge was to replicate the texture of the extruded and dried cookie mixture to get it ready for the next stage of Krave's process. Kevin says, "We ran a few trial batches to get the right combination of dry ingredients so the cookie mixture would have the correct texture after extrusion. UFL Foods supplies the dry mix and we had to develop the proper combination of water, heat, screw design and other extruder parameters."

"The timing for this project was perfect," says Connie. We had just completed installation of the dryer when Krave's approached us. We were ready to see what the new equipment could do and how it would work with the extruder. The finished product, the cookie mixture looking like a slightly puffed cereal, is shipped to Krave's facility where it is candy-coated and mixed with nuts.

Connie Phillips demonstrates the extruder.





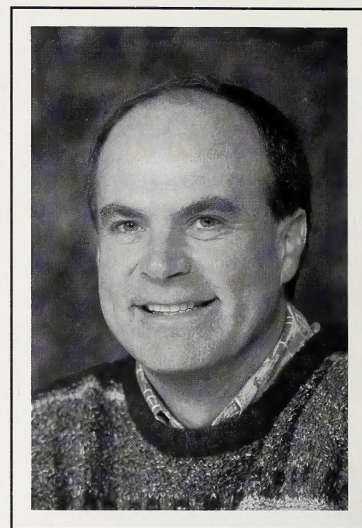
Staff Focus

Murray Fierheller – Packaging Specialist

"Where's Murray?" The question could be coming from one of the Centre's clients stopping in to ask for Murray Fierheller's advice. Just as often, it's another staff member who needs his help to locate a piece of lab equipment, take a photograph or assess a microbiological hazard. Murray's calm, amiable competence is often just what's needed in the middle of a client's long processing day or a small crisis in the product development lab.

Murray holds a B.Sc. in Biochemistry and a M.Sc. in Food Science, both from the University of B.C. After working for several years with Fisheries and Oceans Canada doing research, then quality control with Canadian Fishing Company, Murray joined Alberta Agriculture's Food Quality Branch in 1980. He is one of the original staff members who opened the Centre in 1984. "There were six of us then," he recalls. "We wondered how we'd ever fill up the space. There weren't even walls between most of the area intended for offices. Now we have 19 staff members and we need outdoor sheds for storage."

Murray is the Centre's packaging scientist. He has worked with many Alberta companies to adapt Modified Atmosphere Packaging (MAP) to their needs and is the author of a chapter on Modified Atmosphere Packaging of Miscellaneous Products in *Modified Atmosphere Packaging of Food*. Sandwiches, fresh pasta and fresh produce are examples of foods using MAP to provide better shelf life.



Murray Fierheller

"The technology involves pulling a vacuum in a food package, and/or flushing with other gasses such as carbon dioxide and nitrogen. Carbon dioxide is very effective in preventing spoilage bacteria and mould from growing. You do need packaging materials that won't allow oxygen back in or carbon dioxide to escape," he explains.

"We also have a gas chromatograph to measure the percentage of each gas in the package and a machine to measure the oxygen transfer through the package material." Currently, Murray is working with a paper and foil layered can similar to those used for frozen juices.

In addition to his packaging expertise, Murray provides expertise in product development of soups, sauces, salad dressings and other condiments. Many of these foods need careful processing because they can support the growth of harmful bacteria. Murray works closely with the Food Quality Branch staff in the Longman Building for shelf life studies requiring microbiological analyses.

"If the product is acidic, harmful bacteria won't grow in it and we can process the product in such a way that it can be stored without refrigeration. The challenge is with foods that are not acidic such as most soups and cream based sauces. Many of the new products on the market are refrigerated because the consumer wants a fresh product that isn't frozen. There is a technology available that gives these products a long life in refrigeration, but they do pose some concerns if they aren't properly refrigerated."

Murray has been an active member of the Canadian Institute of Food Science and Technology since 1975. He has held numerous positions on the executive and is currently the section's Chair.

Food Processing Development Centre

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